

IN THE CLAIMS

The current listing of the claims replaces all previous amendments and listings of the claims.

1. (Currently Amended) A printer controller configured to generate pattern data for use in a tone adjusting process, said printer controller comprising:

a selecting unit configured to select a dot size of a reference tone pattern by varying a number of pixels forming each dot of the reference tone pattern; and

a generating unit configured to generate and output to a printer device said reference tone pattern having the dot size selected by said selecting unit and tone adjusting patterns having tones of a predetermined range including a reference tone of said reference tone pattern such that the printer device prints the reference tone pattern and the tone adjusting patterns on a recording medium for evaluation in the tone adjusting process.

2. (Previously Presented) The printer controller as claimed in claim 1, wherein said selecting unit is configured to select the dot size in response to an external input.

3. (Previously Presented) The printer controller as claimed in claim 1, wherein said selecting unit is configured to select the dot size depending on a counted value of a maintenance counter, said counted value indicating a total operating time of a printer engine.

4. (Previously Presented) The printer controller as claimed in claim 1, wherein said selecting unit is configured to select the dot size depending on an output value of a toner sensor, said output value indicating a remaining amount of toner within a printer engine.

5. (Previously Presented) The printer controller as claimed in claim 1, wherein said selecting unit is configured to select the dot size depending on an engine ID stored in a register, said engine ID indicating a type of a printer engine.

6. (Previously Presented) The printer controller as claimed in claim 1, wherein said selecting unit is configured to select the dot size depending on a resolution input to the printer controller.

7. (Previously Presented) The printer controller as claimed in claim 1, wherein said selecting unit is configured to select the dot size depending on each of basic colors used by corresponding image forming sections of a printer engine.

8. (Previously Presented) The printer controller as claimed in claim 1, wherein said generating unit is configured to generate said reference tone pattern and the tone adjusting patterns such that said reference tone pattern includes a central portion and reference sector portions arranged intermittently around said central portion, the tone adjusting patterns include adjusting sector portions arranged intermittently around said central portion and each respectively located between two of the reference sector portions, whereby each of the adjusting sector portions has three sides respectively adjacent to said central portion and two of the reference sector portions.

9. (Previously Presented) The printer controller as claimed in claim 1, further comprising:

a correcting unit configured to determine a  $\gamma$ -correction based on an external input, the external input being based on a printed output of the reference tone pattern and the tone adjusting patterns generated by said generating unit.

10. (Currently Amended) An image forming apparatus comprising:

a printer controller configured to generate pattern data; and

a printer engine configured to print the pattern data generated by said printer controller,

said printer controller comprising:

a selecting unit configured to select a dot size of a reference tone pattern by varying a number of pixels forming each dot of the reference tone pattern; and

a generating unit configured to generate and output a reference tone pattern having the dot size selected by said selecting unit and tone adjusting patterns having tones of a predetermined range including a reference tone of said reference tone pattern,

wherein the printer engine is configured to print the reference tone pattern and the tone adjusting patterns on a recording medium for evaluation in a tone adjusting process.

11. (Previously Presented) The image forming apparatus as claimed in claim 10, wherein said selecting unit is configured to select the dot size in response to an external input.

12. (Previously Presented) The image forming apparatus as claimed in claim 10, wherein said printer engine includes a maintenance counter configured to determine a counted value indicating a total operating time of the printer engine, and said selecting unit of said printer controller is configured to select the dot size depending on the counted value of the maintenance counter.

13. (Previously Presented) The image forming apparatus as claimed in claim 10, wherein said printer engine includes a toner sensor configured to generate an output value indicating a remaining amount of toner within said printer engine, and said selecting unit of said printer controller is configured to select the dot size depending on the output value of the toner sensor.

14. (Previously Presented) The image forming apparatus as claimed in claim 10, wherein said printer engine includes a register configured to store an engine ID indicating a type of said printer engine, and said selecting unit of said printer controller is configured to select the dot size depending on the engine ID stored in the register.

15. (Previously Presented) The image forming apparatus as claimed in claim 10, wherein said selecting unit of said printer controller is configured to select the dot size depending on a resolution input to the printer controller.

16. (Previously Presented) The image forming apparatus as claimed in claim 10, wherein said printer engine includes image forming sections respectively corresponding to basic colors used to print a color image, and said selecting unit of said printer controller is configured to select the dot size depending on each of the basic colors.

17. (Previously Presented) The image forming apparatus as claimed in claim 10, wherein said generating unit of said printer controller is configured to generate said reference tone pattern and the tone adjusting patterns such that said reference tone pattern includes a central portion and reference sector portions arranged intermittently around said central portion, the tone adjusting patterns include adjusting sector portions arranged intermittently around said central portion and each respectively located between two of the reference sector portions, whereby each of the adjusting sector portions has three sides respectively adjacent to said reference tone pattern.

18. (Previously Presented) The image forming apparatus as claimed in claim 10, wherein said printer controller further includes a correcting unit configured to determine a  $\gamma$ -correction based on an external input, the external input being based on a printed output of the reference tone pattern and the tone adjusting patterns generated by said generating unit.

19. (Currently Amended) A tangible computer-readable storage medium configured to store computer code configured to cause a computer to generate pattern data, to be printed by a printer engine, for use in a tone adjusting process, said computer code comprising:

first computer code configured to cause the computer to select a dot size of a reference tone pattern by varying a number of pixels forming each dot of the reference tone pattern; and

second computer code configured to cause the computer to generate and output, to the printer engine, said reference tone pattern having the dot size selected by said selecting unit and tone adjusting patterns having tones of a predetermined range including a reference tone of said reference tone pattern,

wherein the printer engine is configured to print the reference tone pattern and the tone adjusting patterns on a recording medium for evaluation in the tone adjusting process.

20. (Previously Presented) The tangible computer-readable storage medium as claimed in claim 19, wherein said first computer code causes the computer to select the dot size in response to an external input.

21. (Previously Presented) The tangible computer-readable storage medium as claimed in claim 19, wherein said first computer code causes the computer to select the dot size depending on a counted value of a maintenance counter, said counted value indicating a total operating time of the printer engine.

22. (Previously Presented) The tangible computer-readable storage medium as claimed in claim 19, wherein said first computer code causes the computer to select the dot size depending on an output value of a toner sensor, said output value indicating a remaining amount of toner within the printer engine.

23. (Previously Presented) The tangible computer-readable storage medium as claimed in claim 19, wherein said first computer code causes the computer to select the dot size depending on an engine ID indicating a type of the printer engine.

24. (Previously Presented) The tangible computer-readable storage medium as claimed in claim 19, wherein said first computer code causes the computer to select the dot size depending on a resolution input to the printer controller.

25. (Previously Presented) The tangible computer-readable storage medium as claimed in claim 19, wherein said first computer code causes the computer to select the dot size depending on each of basic colors used by corresponding image forming sections of the printer engine.

26. (Currently Amended) The tangible computer-readable storage medium as claimed in claim 19, wherein said second computer code causes the computer to generate said reference tone pattern and the tone adjusting patterns such that said reference tone pattern includes a central portion and reference sector portions arranged intermittently around said central portion, the tone adjusting patterns include ~~adjusting~~ adjusting sector portions arranged intermittently around said central portion and each respectively located between two of the reference sector portions, whereby each of the adjusting sector portions has three sides respectively adjacent to the reference tone pattern.

27. (Previously Presented) The tangible computer-readable storage medium as claimed in claim 19, wherein said program further comprises:

third computer code configured to cause the computer to determine a  $\gamma$ -correction based on an external input, the external input being based on a printed output of the reference tone pattern and the tone adjusting patterns.

28. (Previously Presented) The printer controller as claimed in claim 1, wherein the generating unit is configured to generate means for determining one of the tone adjusting patterns matching the reference tone pattern.

29. (Previously Presented) The printer controller as claimed in claim 10, wherein the generating unit is configured to generate means for determining one of the tone adjusting patterns matching the reference tone pattern.

30. (Previously Presented) The computer-readable storage medium as claimed in claim 19, wherein the second computer code causes the computer to generate means for determining one of the tone adjusting patterns matching the reference tone pattern.

31. (Currently Amended) A printer controller configured to generate pattern data, printed by a printer engine, for use in a tone adjusting process, said printer controller comprising:

means for selecting a dot size of a reference tone pattern by varying a number of pixels forming each dot of the reference tone pattern; and

means for generating and outputting, to the printer engine, said reference tone pattern having the dot size selected by said selecting means and tone adjusting patterns having tones of a predetermined range including a reference tone of said reference tone pattern,

wherein the printer engine is configured to print the reference tone pattern and the tone adjusting patterns on a recording medium for evaluation in the tone adjusting process.

32. (Previously Presented) The printer controller as claimed in claim 31, wherein the means for generating and outputting is configured to generate and output means for determining one of the tone adjusting patterns matching the reference tone pattern.

33. (Currently Amended) A method of adjusting a tone pattern printed by a printer engine, said method comprising:

selecting a dot size of a reference tone pattern by varying a number of pixels forming each dot of the reference tone pattern; and

generating and outputting, to the printer engine, said reference tone pattern having the selected dot size and tone adjusting patterns having tones of a predetermined range including a reference tone of said reference tone pattern;

printing with the printer engine the reference tone pattern and the tone adjusting patterns on a recording medium; and

adjusting the tone pattern printed by the printer engine based on a comparison of the reference tone pattern and the tone adjusting patterns printed on the recording medium.

34. (Previously Presented) The method of adjusting a tone pattern as claimed in Claim 33, wherein said generating and outputting includes generating and outputting means for determining one of the tone adjusting patterns matching the reference tone pattern.

35. (Currently Amended) A method of adjusting a tone pattern printed by a printer engine, said method comprising:

a step for selecting a dot size of a reference tone pattern by varying a number of pixels forming each dot of the reference tone pattern; and

a step for generating and outputting, to the printer engine, said reference tone pattern having the selected dot size and tone adjusting patterns having tones of a predetermined range including a reference tone of said reference tone pattern;

a step for printing with the printer engine the reference tone pattern and the tone adjusting patterns on a recording medium; and

a step for adjusting the tone pattern printed by the printer engine based on a comparison of the reference tone pattern and the tone adjusting patterns printed on the recording medium.

36. (Previously Presented) The method of adjusting a tone pattern as claimed in claim 35, said method further comprising:



a step for determining one of the tone adjusting patterns matching the reference tone pattern.